REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed June 28, 2007. Upon entry of the amendments in this response, claims 1-33 remain pending. In particular, Applicants have amended claims 28-31. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

I. Claim Rejections under 35 U.S.C. §103(a)

A. Statement of Rejection

Claims 1-27 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 6,816,718, issued to *Yan et al.* (hereafter "*Yan*"), in view of U.S. Patent Number 6,029,052, issued to *Isberg et al.* (hereafter "*Isberg*"). Claims 28-33 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 6,694,129, issued to *Peterzell et al.* (hereafter "*Peterzell*"), in view of Digital Video Broadcasting (http://www.dvb.org) and in further view of IEEE 802.11a Standards. In addition, claims 28-33 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Yan* in view of Digital Video Broadcasting (http://www.dvb.org) and in further view of IEEE 802.11a Standards. Applicants respectfully traverse these rejections where not rendered moot by amendment.

B. Discussion of Rejections

The U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a *prima facie* case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquires, also expressed in MPEP 2100-116, are as follows:

(A) Determining the scope and contents of the prior art;

(B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations.

Applicants respectfully submit that a *prima facie* case of obviousness is not established using the art of record.

1. **Claim 1**

Applicants' claim 1 provides as follows (emphasis added):

> A method for receiving signals based on a plurality of systems, the method comprising:
> converting a first signal based on a first system to a first baseband signal;
> converting a second signal based on a second system to a second baseband signal;
> processing the first baseband signal using baseband components; and
> processing the second baseband signal using the baseband components, wherein processing the first baseband signal and the second baseband signal comprises ***selectively filtering and selectively DC-offset correcting the first and second baseband signals, wherein selectively filtering and selectively DC-offset correcting comprises selecting different filtering bandwidths and different DC-offset correcting bandwidths based on which system baseband signal is to be processed***.

Applicants respectfully request that the rejection of independent claim 1 be withdrawn for at least the reason that *Yan* in view of *Isberg* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 1.

a. **Selectively filtering**

The Office Action acknowledges that "Yan et al fails to disclose 'selectively filtering the first and second baseband signal, wherein selective filtering comprises selecting different filtering bandwidths'." (Office Action, page 6). But, the Office Action alleges that "Isberg et al discloses such a limitation." (Office Action, page 6). However, *Isberg* provides:

> In accordance with the direct conversion principle, ***the frequencies of the signals output by mixers 40a,b and 41a,b are within the same frequency range as the bandwidth of the received signals***. Thus, oscillators 36a and 36b are in the same frequency range as the received signals, although ***the first and second bands can have different bandwidths***. As a result of the direct conversion principle, many

> hardware components of the receiver can be re-used, since there is no conversion of signals to an intermediate frequency outside of the frequency range of the bandwidth of the received signals. ...
>
> The in-phase (I) signals and quadrature (Q) signals output by the selected processing unit are provided to an in-phase low pass filter 42a and a quadrature low pass filter 42b, respectively. ***These low pass filters 42a and 42b preferably have programmable bandwidths to enable the receiver to accommodate two bands having different bandwidths***. The filtered I and Q signals are then passed to baseband processing circuitry 44, which can be conventional baseband processing circuitry as is well-known in the art. It will be appreciated that since direct conversion avoids the use of intermediate frequencies outside of the range of the received signals, the signals output by processing units 32a and 32b can be filtered in low pass filters rather than band pass filters. ...

(*Isberg*, column 3, lines 34-57, emphasis added). Even assuming, *arguendo*, that *Isberg* teaches low pass filters programmed for two different bandwidths, *Isberg* does not teach either "***selectively filtering ... the first and second baseband signals***" or "***selecting different filtering bandwidths ... based on which system baseband signal is to be processed.***" Thus, *Yan* in view of *Isberg* does not teach or suggest "***selectively filtering ... the first and second baseband signals, wherein selectively filtering ... comprises selecting different filtering bandwidths ... based on which system baseband signal is to be processed***" as recited in claim 1.

b. Selectively DC-offset correcting

The Office Action appears to allege that *Yan* discloses "selectively DC-offset correcting the first and second baseband signals ... wherein selectively DC-offset correcting comprises selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed" (Office Action, page 5). However, *Yan* provides:

> Prior to baseband processing, the differential in-phase and quadrature signals, I+, I-, Q+ and Q- are preferably filtered with filters 50A-50D, respectively, and amplified with amplifiers 52A and 52B to a desired signal level. As illustrated, ***the relative DC levels of each of the differential in-phase and quadrature signals,*** I+, I-, Q+, and Q- ***are monitored by DC correction circuitry*** 56. The ***DC correction circuitry determines the relative DC levels for the differential in-phase and quadrature signals***, I+, I-, Q+, and Q- ***and provides corresponding level adjustment outputs to adjust the DC levels of the individual***

differential in-phase and quadrature signals, I+, I-, Q+, and Q-. Each level adjustment output is summed with the corresponding one of the differential in-phase and quadrature signals, I+, I-, Q+, and Q- to effect DC offset correction using summing circuitry 54A-54D. The ***DC offset correction operates to force the DC levels of the differential in-phase signals*** I+ and I- ***to a common level, and the DC levels of the differential quadrature signals*** Q+ and Q- ***to a common level*** to reduce or eliminate distortion caused by having a DC offset between the respective differential signals.

As noted, the present invention incorporates a dummy LNA 40E ... The dummy LNA 40E has a differential input coupled to a resistive network, illustrated as comprising resistors 66A-66C. ***During DC offset correction, the resistive network provides a selectable resistance across the differential input of the dummy LNA 40E***. The selected resistance is chosen to emulate the impedance that is normally presented to the differential input of one of the LNAs 40A-40D associated with the communication band that is going to be used for receiving the incoming signal. The selected resistance will correlate to the equivalent resistance at the output of the corresponding filter 38A-38D. Thus, the resistance reflects that provided by the corresponding one of the filters 38A-38D and any other residual resistance provided by elements between the input of the LNAs 40A-40D and the receive leg of the TX/RX switch 28. ... Those skilled in the art will recognize various types of selectable resistive networks capable of controlling the resistance provided across the differential input of the dummy LNA 40E.

For controlling DC offset correction according to the disclosed embodiment, ***control logic***, represented by the control system 32, ***will*** ... ***select the resistor(s) to place across the differential input of the dummy LNA 40E*** using a load control signal 62, and control the DC correction circuitry 56 using a DC correction control signal 64. ... The load control signal 62 may be used to selectively switch on the one or more transistor pairs 68-70, 72-74, and 76-78 to couple an appropriate resistance to the input of the dummy LNA 40E. The DC correction control signal 64 will preferably control when the DC correction circuitry 56 will operate to adjust the DC voltage levels of the differential in-phase and quadrature signals, I+, I-, Q+, and Q-.

(*Yan*, column 5, line 22 to column 6, line 22, emphasis added). Even assuming, *arguendo*, that *Yan* teaches either DC correction circuitry monitoring the differential in-phase and quadrature signals and adjusting the signals to force DC levels to a common level or control logic selecting input resistance to a dummy LNA, *Yan* does not teach "***selecting ... different DC-offset correcting bandwidths based on which system baseband signal is to be processed***" as recited in claim 1.

The addition of *Isberg* does not overcome this deficiency. *Isberg* does not disclose or suggest DC correction circuitry. Thus, *Yan* in view of *Isberg* do not teach or suggest "***selectively DC-offset correcting the first and second baseband signals, wherein ... selectively DC-offset correcting comprises selecting different filtering bandwidths and different DC-offset correcting bandwidths based on which system baseband signal is to be processed***" as recited in claim 1.

c. Summary

For at least the reasons described above, *Yan* in view of *Isberg* fails to disclose, teach or suggest all of the features recited in claim 1. Therefore, Applicants respectfully request that the rejection of claim 1 be withdrawn.

2. Claims 2-10

Because claim 1 is allowable over *Yan* in view of *Isberg*, dependent claims 2-10 are allowable as a matter of law for at least the reason that at each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 2-10 be withdrawn.

3. Claim 11

Applicants' claim 11 provides as follows (emphasis added):

> A multi-mode receiver system for processing signals based on a plurality of systems, comprising:
> a baseband section configured to process a first baseband signal based on a first system using baseband components, wherein the baseband section is further configured to process a second baseband signal based on a second system using the baseband components, wherein ***the baseband components comprise bandwidth-switchable low-pass filters and bandwidth-switchable DC-offset correction elements***.

Applicants respectfully request that the rejection of independent claim 11 be withdrawn for at least the reason that *Yan* in view of *Isberg* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 11.

The Office Action does not even allege that *Yan* or *Isberg* discloses, teaches, or suggests "***bandwidth-switchable low-pass filters and bandwidth-switchable DC-offset correction elements***" as recited in claim 11. It appears that the Office Action has block copied limitations from Applicants' claim 1 and provided a general statement that *Yan* discloses each of those limitations at the indicated sections. However, the cited limitation is not included in claim 1. Nor is it included in the other claims. Thus, the Office Action fails to show that the cited references teach or suggest this claim element.

As has been acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a *prima facie* case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). The Manual of Patent Examining Procedure (MPEP) section 2143 discusses the requirements of a *prima facie* case for obviousness. That section provides as follows:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teaching. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Therefore, the Office Action fails to establish a *prima facie* case of obviousness for claim 11 and Applicants respectfully request that the rejection of claim 11 be withdrawn and that the next Office Action, if not a notice of allowance, be non final to afford Applicants the opprotunity to fully address the patentability of claim 11 in view of the art of record and clarify issues for appeal.

Even assuming, *arguendo*, that "selectively filtering the first and second baseband signal, wherein selective filtering comprises selecting different filtering bandwidths" (Office

Action, page 6) is equivalent to "***bandwidth-switchable low-pass filters***," *Yan* in view of *Isberg* fails to teach or suggest "***selectively filtering ... the first and second baseband signals, wherein selectively filtering ... comprises selecting different filtering bandwidths ... based on which system baseband signal is to be processed***" as described previously in reference to claim 1. Thus, *Yan* in view of *Isberg* fails to teach or suggest "***bandwidth-switchable low-pass filters***."

Similarly, even assuming, *arguendo*, that "selectively DC-offset correcting the first and second baseband signals ... wherein selectively DC-offset correcting comprises selecting different DC-offset correcting bandwidths" (Office Action, page 5) is equivalent to "***bandwidth-switchable DC-offset correction elements***," *Yan* in view of *Isberg* fails to teach or suggest "***selectively DC-offset correcting the first and second baseband signals, wherein ... selectively DC-offset correcting comprises selecting different filtering bandwidths and different DC-offset correcting bandwidths based on which system baseband signal is to be processed***" as described previously in reference to claim 1. Thus, *Yan* in view of *Isberg* fails to teach or suggest "***bandwidth-switchable DC-offset correction elements***."

For at least the reasons described above, *Yan* in view of *Isberg* fails to disclose, teach or suggest all of the features recited in claim 11. Therefore, Applicants respectfully request that the rejection of claim 11 be withdrawn.

4. Claims 12-20

Because claim 11 is allowable over *Yan* in view of *Isberg*, dependent claims 12-20 are allowable as a matter of law for at least the reason that at each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 12-20 be withdrawn.

5. Claim 21

Applicants' claim 21 provides as follows (emphasis added):

A transceiver, comprising:
means for transmitting signals;
means for receiving signals, wherein the means for receiving includes pre-converting processing means;
means for converting a first signal based on a first system to a first baseband signal;
means for converting a second signal based on a second system to a second baseband signal; and
means for processing the first baseband signal, wherein the means for processing the first baseband signal is used for processing the second baseband signal, wherein the means for processing the first baseband signal comprises ***means for selectively filtering and means for selectively DC-offset correcting the first and second baseband signals, wherein the means for selectively filtering and the means for selectively DC-offset correcting comprises means for selecting different filtering bandwidths and means for selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed***.

Applicants respectfully request that the rejection of independent claim 21 be withdrawn for at least the reason that *Yan* in view of *Isberg* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 21.

The Office Action appears to allege that claim 21 contains limitations that are substantially equivalent to the limitations of claim 1 and are therefore rejected under the same basis. For similar reasons described above with respect to claim 1, Applicants respectfully submit that *Yan* in view of *Isberg* fails to disclose, teach, or suggest at least the following features:

a. ***means for selectively filtering ... the first and second baseband signals, wherein the means for selectively filtering ... comprises means for selecting different filtering bandwidths ... based on which system baseband signal is to be processed***; and

b. ***means for selectively DC-offset correcting the first and second baseband signals, wherein ... the means for selectively DC-offset correcting comprises ... means for selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed***,

as recited in claim 21. For at least the reasons described above, *Yan* in view of *Isberg* fails to disclose, teach or suggest all of the features recited in claim 21. Therefore, Applicants respectfully request that the rejection of claim 21 be withdrawn.

6. Claims 22-27

Because claim 21 is allowable over *Yan* in view of *Isberg*, dependent claims 22-27 are allowable as a matter of law for at least the reason that at each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 22-27 be withdrawn.

7. Claims 28-33

Applicants' claim 28 provides as follows (emphasis added):

> A multi-mode receiver system, comprising:
> a code-division multiple access system having a common baseband system, wherein the common baseband system includes ***a direct current (DC)-correction element configured to include switchable bandwidths***; and
> a digital-broadcast system that shares the common baseband system with the code-division multiple access system.

Applicants respectfully submit that the rejections to claim 28 have been rendered moot.

In reference to claim 30, the Office Action appears to allege that *Peterzell* discloses "the DC-correction element ... configured to include switchable bandwidths" (Office Action, page 10). The Office Action alleges that "Peterzell et al discloses in Fig. 3, ... label I Channel DC offset correction and Q Channel DC offset correction is inputted in to labels 105 and 100, which indicates the bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction." (Office Action, pages 10-11). However, in reference to FIG. 3, *Peterzell* provides "To support multiple bands and modes of operation, receiver 101 must include some mode-specific components. For instance, ***in a multi-band receiver, an individual RF signal path is typically required for each frequency band.***" (*Peterzell*, column 4, lines 34-37). Even assuming, *arguendo*, that *Peterzell* teaches individual signal paths for each frequency band, *Peterzell* does not disclose or suggest "***a DC-correction element configured to include switchable bandwidths***" as recited in claim 28.

In addition, the Office Action alleges that *Peterzell* "discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset." (Office Action, page 11). However, *Peterzell* provides:

> LO 350 may comprise ***a frequency generator that may generate output signals at various frequencies***. For instance, LO 350 may output a first signal and a second signal that is phase-shifted from the first signal by 90.degree. LO 350 may include a phase-locked loop (PLL), a voltage controlled oscillator (VCO), a frequency mixing mechanism, and a phase shifting mechanism. ***LO 350 may include a band select 354 that controls LO 350 depending on an operating frequency of received RF signals***. In an exemplary embodiment, LO 350 uses differential paths to mitigate LO leakage and noise coupling to and from the signal paths at the I and Q mixer RF ports.
>
> ...
>
> FIG. 7 is a graph plotting mixer RF to LO isolation versus LO drive level in a receiver. As shown, the mixer RF to LO isolation is not linear, and depends on LO drive level. In an exemplary implementation, the LO drive level of a receiver may be varied or fixed at higher levels to improve isolation. Accordingly, the jammer leakage level at the LO port of the receiver may be suppressed. When no jammers are present, the LO drive level may be lowered. It is to be noted that, ***relative to an adjustable LO drive level, an LO drive level fixed at higher levels (>+10 dBm) leads to higher current consumption and conducted LO leakage***. However, because ***the DC output of the LO I and Q channel mixers is related to the LO leakage, varying the LO drive level changes the DC offset***. Therefore, the DC offset may need to be removed before baseband signals may be demodulated. Other mixer performance parameters may also vary as a function of LO drive level, limiting the range of adjustment. A mixer's noise figure and its IIP2 and IIP3 specifications may degrade if the LO drive level is varied over a wide range.
>
> ...
>
> The ***drive level of the LO signal may be adjusted by varying the gain*** of buffer amplifier 851 via a LO drive adjust control signal 921 (LO_PWR).

(*Peterzell*, column 9, lines 26-37; column 10, lines 41-59; and column 12, lines 44-46; emphasis added). Even assuming, *arguendo*, that *Peterzell* teaches selecting LO frequencies and varying the gain (dB) of the LO signal, *Peterzell* does not teach "***a DC-correction element configured to include switchable bandwidths***" as recited in claim 28. The addition of Digital Video

Broadcasting (pages 1-6) and IEEE 802.11a Standards (pages 3-7) does not overcome this limitation. Thus, *Peterzell* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards fails to teach or suggest "***a direct current (DC)-correction element configured to include switchable bandwidths***" as recited in claim 28.

The Office Action also appears to allege that claim 30 is unpatentable over *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards. (Office Action, page 12). However, the Office Action does not specifically address the elements of claim 30. Even assuming, *arguendo*, that the rejection is similar to those for claims 1, 11, and 21, *Yan* does not teach "***selecting ... different DC-offset correcting bandwidths based on which system baseband signal is to be processed***" as described above in reference to claim 1. Thus, *Yan* fails to teach or suggest "***a DC-correction element configured to include switchable bandwidths***." The addition of Digital Video Broadcasting (pages 1-6) and IEEE 802.11a Standards (pages 3-7) does not overcome this limitation. Thus, *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards fails to teach or suggest "***a direct current (DC)-correction element configured to include switchable bandwidths***" as recited in claim 28.

For at least the reasons described above, the cited references, individually or in combination, fail to disclose, teach or suggest all of the features recited in claim 28. Therefore, Applicants respectfully request that the rejection of claim 28 be withdrawn.

Because independent claim 28 is allowable over *Peterzell* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards and *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards, dependent claims 29-33 are allowable as a matter of law for at least the reason that the dependent claims 29-33 contain all elements of their respective base claim. See, *e.g.*, *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 29-33 be withdrawn.

8. Claims 6,7,10,15,17,19, 29, and 31-33

The Office Action alleges that "filtering can be low pass, all pass, FIR since such filters are well known in the art and can be used to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as desired by the inventor" (Office Action, pages 7-8 and page 14). Applicants respectfully traverse these allegations of well-known techniques and submit that the subject matter pertaining to these claims should not be considered well-known. As provided in MPEP § 2144.03 addressing Official Notice and allegations of well-known or commonly known:

> Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424, F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)).

As provided in MPEP § 2144.03 (emphasis added):

> If applicant adequately traverses the examiner's assertion of official notice, *the examiner must provide documentary evidence in the next Office action* if the rejection is to be maintained. See 37 CFR 1.104(c)(2).

Applicants respectfully submit that "low pass, all pass, FIR ... to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as desired by the inventor" is known so as to be capable of instant and unquestionable demonstration. In the context of the claim language, such a finding of well-known art is improper at least given the added complexity associated with such features as described in independent claims 1 and 28. Accordingly, Applicants traverse the assertions with regard to well-known. Because of this traversal, the Office must support its findings with evidence or withdraw the well-known determination.

CONCLUSION

Applicants respectfully request that all outstanding objections and rejections be withdrawn and that this application and presently pending claims 1-33 be allowed to issue. Any statements in the Office Action that are not explicitly addressed herein are not intended to be admitted. In addition, any and all findings of inherency are traversed as not having been shown to be necessarily present. Furthermore, any and all findings of well-known art and official notice, or statements interpreted similarly, should not be considered well known since the Office Action does not include specific factual findings predicated on sound technical and scientific reasoning to support such conclusions. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted,

By: /dr/

David Rodack,
Reg. No. 47,034

THOMAS, KAYDEN, HORSTEMEYER & RISLEY, L.L.P.

100 Galleria Parkway, NW
Suite 1750
Atlanta, Georgia 30339-5948
Tel: (770) 933-9500
Fax: (770) 951-0933